Contribution ID: **1004** Type: **Poster**

Particle Identification Algorithms Based on Machine Learning for STCF

Thursday 18 July 2024 20:40 (20 minutes)

The Super Tau-Charm Facility (STCF) is a new generation e^+e^- collider designed for various physics topics in the τ-charm energy region. The particle identification (PID), as one of the most fundemental tools in physics analysis, is crutial for achieving excellent physics performance. In this work, we present a powerful PID software based on ML techniques, including a global PID algorithm for charged particles combining information from all sub-detectors, a deep CNN taking Cherenkov detector inputs to discriminate charged hadrons, as well as a deep CNN discriminating neutral particles based on calorimeter responses. The preliminary results show the PID models has achieved excellent PID performance, greatly boosting the physics potential of STCF.

Alternate track

1. Computing, AI and Data Handling

I read the instructions above

Yes

Authors: ZHAI, Yuncong (Shandong University); YAO, Zhipeng

Co-authors: Dr LI, Teng (Shandong University, CN); HUANG, Xingtao

Presenter: ZHAI, Yuncong (Shandong University)

Session Classification: Poster Session 1

Track Classification: 11. Accelerator: Physics, Performance, and R&D for Future Facilities